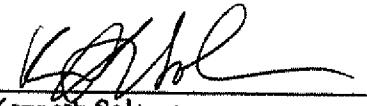


PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICECERTIFICATE OF MAILING FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being deposited in the United States Postal Service as first-class mail in an envelope addressed to: ~~BOX NON FEE AMENDMENT~~ Assistant Commissioner for Patents, Washington, D.C. 20231 on September 12, 2001, to fax No. ~~703-305-3044~~.
703-746-5072


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In re application of:
Davé et al.

Serial No.: 09/320,793

Examiner David M. Naff

Filed: May 27, 1999

Group Art Unit 1651

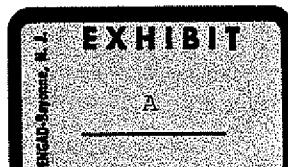
For: Environmentally Sensitive Glass
Composite Materials

Examiner David M. Naff
~~BOX NON FEE AMENDMENT~~
Assistant Commissioner for Patents
Washington, D.C. 20231

AFFIDAVIT OF DR. BAKUL DAVÉ

I, Bakul Davé, state as follows:

1. I am an Assistant Professor of Materials Chemistry for Southern Illinois University, where my research interests include sol-gel synthesis of materials with well-defined structural, functional and operational responses. I have authored or co-authored over a dozen scientific papers and, in response to invitations, chapters of several professional scientific reference books, including articles and chapters relating to sol-gel glasses. After I received my B.Sc. degree in



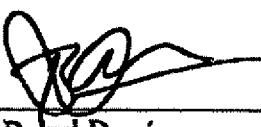
chemistry from Bombay University in 1987, my M.Sc. degree in inorganic chemistry from Indian Institute of Technology, Bombay in 1987, and my Ph.D. degree in inorganic chemistry from the University of Houston in 1993, I conducted postdoctoral research at UCLA in the Department of Chemistry and Biochemistry, and the Department of Materials Science and Engineering in the area of sol-gel based biomolecular materials. As a result of my educational background and my research, I am intimately familiar with sol-gel glasses and in particular what is known as "smart" materials. I am the named inventor in the subject patent application.

2. The composites of my subject patent application comprise a group of alterable charge, a hydrophobic group and a hydrophilic group. As a result of the presence of this combination of groups, the composite is "smart;" that is, as a result of the presence of the noted combination of groups, the composite is capable of responding to changes in its environment by altering one or more of its properties. In this case, the composites I have invented may respond to environmental changes of temperature, pH, solvent, salt, metal ions, chemical species, mechanical pressure, electrical potential, light, ultrasonic vibration, and so forth.

3. I have studied U.S. patent 5,200,334 to Dunn et al. and U.S. patent 6,080,402 to Reetz et al. Both references describe traditional sol-gels in the sense that the sol-gels described therein are not "smart" as I have described above. Thus, neither of these patents disclose or describe a structure that is "smart" in the sense I have explained above and as I have discovered results from the combination of groups discussed above. Moreover, I see no suggestion in either patent (whether viewed separately or in combination together) to employ such a combination of groups or to develop a composition that is "smart" in the sense explained above or that results from the combination of groups discussed above. Instead, the sol-gels described in the noted patents are conventional dialkoxodisilane-based sol-gels.

4. I further declare that all statements herein made by my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States

Code, and that such willful false statements may jeopardize the validity of the above-identified application.



Dr. Bakul Davé

Date Sept 12, 2001